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EXAMINER

KERNS, KEVIN P

ART UNIT

PAPER NUMBER

1725

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/622,921

**Applicant(s)**FRAIT ET AL. **Examiner**

Kevin P. Kerns

**Art Unit**

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 27 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☒ Claim(s) 1-28 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/8/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicants' election without traverse of Group I (claims 1-26) in the reply filed on October 20, 2004 is acknowledged.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: brake rotor "54" (should be present in all of Figures 5-8); and spring coils "74" (see specification page 10, 6<sup>th</sup> line). It is suggested to correct Figures 5-8 by replacing reference number "50" (upper right of each figure) with "54". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to because a line/arrow should be drawn from "28" to the dampening structure in Figure 4 (right side of drawing). In addition, in Figures 2-4, it

appears as though that both dampening structures "28" would not be attached to the remainder of the rotor after casting of metal, as dampening structure "28" on the left side of these figures is exposed to molten metal and would be attached to the larger structure, but dampening structure "28" on the right side of these figures is completely surrounded by sand core "40", which would prevent contact and subsequent attachment to solidifying molten metal. As a result, the right-side dampening structure would remain dangling after removal of the sand core. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

4. Claim 3 is objected to because of the following informalities: in the 2<sup>nd</sup> line, "said" should be deleted before "sand", and "said" should be changed to "a" before "sand core mold", as neither of these terms have proper antecedent basis with respect to claim 1. Alternatively, the dependency of claim 3 could be changed to depend on claim 2 rather than claim 1. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 7-14, 17-21, 23, 24, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Oono et al. (US 5,004,078).

Oono et al. disclose a ventilated disk brake rotor and process for making the rotor, in which the process includes the steps of forming a sand core 51 (via blowing sand into a sand core mold (50a,50b) defining an internal cavity and inherently containing a hole for pouring sand into the mold cavity) having at least one dampening structure 17 (heat and corrosion resistant bent metal bar of one-piece construction) partially encapsulated within the sand core 51; locating the sand core 51 and dampening structure(s) 17 within a master (rotor) mold; casting by pouring a molten

Art Unit: 1725

metal material into the master/rotor mold around the sand core 51 and dampening structure 17 to form a cast part (disk brake rotor 11 having a plurality of brake plate supports containing oblong holes 16 through which the dampening structure(s) are located) upon solidification of the metal; and removing the sand core 51 from the disk brake rotor 11 and master/rotor mold while leaving the dampening structure(s) 17 in contact with (trapped within) the rotor 11 (abstract; column 1, lines 34-68; column 2, lines 1-68; column 3, lines 1-11; column 4, lines 11-38; and Figures 18-20). Other embodiments include a pair of concentric dampening structures to obtain a multi-piece construction (column 5, lines 39-68; column 6, lines 1-68; column 7, lines 1-4; and Figures 7-9 and 15-17).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 1725

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 4-6, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oono et al. (US 5,004,078) in view of Kim (US 5,479,981).

Oono et al. disclose the features of claims 1 and 7 above. Oono et al. do not specifically disclose the use of a binder added to the sand core mold during the sand core forming process.

However, Kim discloses a method for casting a hollow camshaft that includes the steps of providing a sand core forming mold; pouring sand into the mold; hardening the sand by introducing an amine gas (binder) to the sand to harden the core; locating the sand core in a metal casting mold; and adding molten iron to the mold containing the sand core to produce a cast part, such that the binder to be added to the sand forming the sand core within the mold is advantageous for obtaining a hardened sand core during the subsequent metal casting process (abstract; column 2, lines 1-36; column 3, lines 21-67; column 4, lines 1-67; column 5, lines 1-51; and Figures 1-4).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the process of making a ventilated disk brake rotor, as disclosed by Oono et al., by using a binder to be added to the sand in the sand core mold during the sand core forming process, as taught by Kim, in order to obtain a hardened sand core during the subsequent metal casting process (Kim; column 3, lines 41-45; and column 4, lines 62-67).

10. Claims 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oono et al. (US 5,004,078) in view of Pollock et al. (US 6,336,533).

Oono et al. disclose the features of claim 7 above. Oono et al. do not disclose the use of a dampening structure having a plurality of air passages and having connectable first and second ends.

However, Pollock et al. disclose a noise dampening brake shoe that includes a dampening member in the form of one or more coiled springs (16,116,216) that have a plurality of air passages (spaces between spring coils) and respective first and second ends that connect to web plates (14,114,214) for improved noise dampening (abstract; column 1, lines 54-67; column 2, lines 18-67; column 3, lines 1-50; and Figures 3-6).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the process of making a ventilated disk brake rotor, as disclosed by Oono et al., by using a dampening structure having a plurality of air passages and having connectable first and second ends, as taught by Pollock et al., in order to obtain improved noise dampening (Pollock et al.; abstract; column 2, lines 46-55; and column 3, lines 19-24 and 45-50).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. DE 24 46 938 is also cited in PTO-892.



Art Unit: 1725

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns* 11/12/04  
Examiner  
Art Unit 1725

*KPK*  
kpk  
November 12, 2004